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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,300	03/24/2000	Alan W. Schwabacher	2003118-0001	2305

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EXAMINER
BAKER, MAURIE GARCIA

ART UNIT	PAPER NUMBER
1627	12

DATE MAILED: 06/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

FILE

Office Action Summary

Application No.	Applicant(s)
09/535,300	Schwabacher et al
Examiner	**Art Unit**
Maurie Garcia Baker, Ph. D.	1627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *THREE* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Mar 5, 2002*

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1, 3, 4, 6-13, and 30-50* is/are pending in the applica

4a) Of the above, claim(s) *9 and 12* is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1, 3, 4, 6-8, 10, 11, 13, and 30-50* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *9*
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The Response filed March 5, 2002 (Paper No. 11) is acknowledged. Claim 1 was amended; claims 2, 5 and 14-29 were cancelled and claims 30-50 were added. Therefore, claims 1, 3, 4, 6-13 and 30-50 are pending.

2. As there is no allowable generic claim, claims 9 and 12 remain withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected species.

3. Therefore, claims 1, 3, 4, 6-8, 10, 11, 13 and newly added 30-50 are examined on the merits in this action.

Withdrawn Objections/Rejections

4. The objection to the Brief Description of the Drawings is withdrawn in view of applicant's amendment. The objection to the disclosure for containing an embedded hyperlink is also withdrawn in view of applicant's amendments thereto. The previous rejections under 35 USC 102 and 103 are withdrawn in view of applicant's amendments as well. However, new rejections that are necessitated by applicant's amendments are set forth below. See also paragraph 5 below.

Response to Arguments/Amendments

5. Applicant's arguments filed March 5, 2002 have been fully considered but are moot in view of the new ground(s) of rejection set forth in this action. However, the rejection over Browne in view of Pirrung is basically the same as the rejection previously set forth. Thus, the following is noted.

6. First, the examiner would like to note that Applicant argues the instant claims ***as amended***. Next, it is noted that applicant argues the Pirrung reference separately (see Response, page 8). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The examiner's position is that the *combined* teachings of the references render the claimed invention, as amended, *prima facie* obvious (see new rejections based on the amended claims set forth below). Specifically, the examiner is relying on the Browne reference for teaching of agents attached <u>*along the length*</u> of an optical fiber and Pirrung for the teaching of attaching peptides/proteins to optical fibers. The motivation for one of ordinary skill is set forth in Browne (intrinsic chemical sensors having agents that are "macroscopically distributed along a single optical fiber" are suited for certain specific sensing applications (see page 2292, (b)) and Pirrung (creating large arrays of peptides or proteins to screen for biological activity (see column 3, lines 35-61).

(B) Claims 1, 30, 31, 32, 50 and any claims dependent thereon: The specification as originally filed does not provide support for the invention as now claimed. The claims now recite that "the array has linear organization". There does not appear to be clear support for this newly added limitation and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure. See also paragraph 10(C) below.

(C) Claims 31, 32, 33, 50 and any claims dependent thereon: The specification as originally filed does not provide support for the invention as now claimed. Claim 31 recites various limitations on "first [and additional] set of reagents or reaction conditions" and "first [and second] specific spatial period" where each peptide or protein within the set "being related to all other peptides or proteins in the first [or additional] set as a product of the first set of reagents or reaction conditions", etc. Claim 32 recites "each peptide or protein in a set is related to all other peptides or proteins in the set as a product of the reagents or reaction conditions". Claim 33 depends on claim 32 and also recites that the "reactive moieties have additional functional groups which are masked by protecting groups", which are further removed. Claim 50 recites various limitations on "first [and second] set of reaction conditions or reagents" and "first [and second] specific spatial period" where "peptides or proteins that are related to one another as products of exposure to the same first set of reaction conditions are present periodically on the fiber separated from one another by

New Rejections – Necessitated by Amendment
Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1, 3, 4, 6-8, 10, 11, 13 and 30-50 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Please note that there are six (6) separate rejections listed as A – F.

(A) Claims 1, 30 and any claims dependent thereon: The specification as originally filed does not provide support for the invention as now claimed. The claims now recite that "the peptides and proteins are not intermediates leading to a single final product". There simply does not appear to be support for this newly added limitation and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure. Also, in order for a negative limitation to be added to a claim, that particular limitation must be specifically recited in the specification.

the first specific spatial period", etc. There simply does not appear to be support for ***the entirety*** of the process limitations set forth in these new claims and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure.

(D) Claim 36: The specification as originally filed does not provide support for the invention as now claimed. The claim recites that "the peptides or proteins are arranged one-dimensionally". There does not appear to be clear support for this newly added limitation and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure. See also paragraph 10(C) below.

(E) Claims 47 and 48: The specification as originally filed does not provide support for the invention as now claimed. The claims now recite that "the peptides or proteins are not fluorescent" or "at least one peptide or protein is not fluorescent". There simply does not appear to be support for this newly added limitation and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure. Also, in order for a negative limitation to be added to a claim, that particular limitation must be specifically recited in the specification.

(F) Claims 38-46: The specification as originally filed does not provide support for the invention as now claimed. Claims 38-42 recite various limitations such as "separated by a constant interval" and "present at at least two different positions" and "present at only one different position". Claims 43-46 recite various limitations such as "first synthesis product", "second synthesis product", and "chemical structures". There simply does not appear to be support for ***the entirety*** of the limitations set forth in these new claims and applicant has not pointed to support. In accordance with MPEP § 714.02, applicants should **specifically point out support** for any amendments made to the disclosure. See also paragraph 10(D) below.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1, 30-32, 36, 37, 43-46 and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A) Claims 1 and 30 recite "the peptides and proteins are not intermediates leading to a single final product". This is deemed to be confusing as it is unclear as to applicant's intent. Since the "intermediate", "final product" and also the reaction in question are not defined by the claim, one of ordinary skill

could not determine whether or not the chemical compounds would lead to the same or different final products. Any chemical compound could be an intermediate for a variety of different reactions, leading to a variety of different final products.

(B) Claim 32 lacks antecedent basis for the term "library" (last line of claim).

(C) The claims use three terms that appear to be identical. These are "linear organization" (claims 1, 30, 31, 32 and 50); "one-dimensionally" (claim 36) and "arranged linearly" (claim 37). It is simply unclear what is the meaning of these terms and what the difference is between them and this adds considerable confusion to the claims.

(D) Claims 43-46 recite various limitations such as "first synthesis product", "second synthesis product", and "chemical structures". It is simply unclear what is the meaning of these terms and what the difference is between them and this adds considerable confusion to the claims. That is, what are the "synthesis products" and "chemical structures" and how do they relate to the peptides and proteins?

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said

subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1, 3, 4, 6-8, 13, 30-37 and 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al (Anal. Chem. 1996; on PTO-1449) in view of Pirrung et al (US 5,143,854; on PTO-1449).

Browne et al teach an "intrinsic sol-gel clad fiber optic sensor" (see Title and Abstract) which reads on an array of agents attached to an optical fiber in different regions (instant claim 6). The reference teaches that the "active sensor region of a fiber can be either immobilized at the distal end of an optical fiber (extrinsic) or *distributed along the length of the fiber-optic waveguide* (intrinsic)" [emphasis added] (page 2289, 1st column, bottom). Specifically, Browne et al teach a sol-gel clad optical fiber (see page 2291; Figure 1 and 1st column under 'Experimental Section; Sol-Gel Matrix'). Note that the claddings were "applied

by dip-coating silica core fibers". This reads on the limitations of instant claims 7, 8 and 13. Also, the various sensor molecules of Browne et al are spatially resolved along the fiber, see Figure 1 and accompanying legend (reading on "uniquely specified by location" as in instant claim 34 and the limitations of "linear organization" "arranged linearly or "one-dimensionally", e.g. 1, 30, 31, 32, 36, 37 and 50).

The above-described fibers of Browne et al have sol-gel clad *regions* of the fiber that are created by removing the cladding from a silicone clad fiber and then replacing it with sol-gel cladding in the regions where the silicone was removed (see page 2291 1st column under 'Experimental Section; Sol-Gel Clad Fiber'). Several different dyes were used as dopants in the sol-gel regions. Browne's purposely created *regions* of sol-gel clad fiber correspond to the claimed "pre-determined portion of the optical fiber" and "reactant regions" of instant claims 1 and 6. The fiber shown on page 2292 of the reference (in Figure 3 and discussed under section denoted (b)) shows a fiber that has four regions with attached AA and CV dyes that are spatially resolved. Thus, with respect to the limitations of array members being present at only one position (claim 42) and the various "synthesis products" and "chemical structures" (claims 43-46), the above teachings of Browne et al are deemed to read on these limitations.

Browne et al lacks the teaching of the limitations with respect to specifically using peptides or proteins as the members of the array that is attached to the fiber.

However, it was well known in the art at the time of filing that optical fibers can be derivatized with a variety of agents. Browne et al lists "biological analytes" and specifically antibodies that can be used in fiber-optic chemical sensors (page 2289, 2nd column). Moreover, it was also well known in the art to make arrays of peptides/proteins on a solid support in order to have a large number of sequences to conveniently screen. Pirrung et al teach the creation of arrays by "placement of materials at known locations" (column 1, line 28) and discuss the use of peptides and proteins as the materials of the array (column 1, line 32 through column 2, line 14 & column 28, lines 5-11, for example). Pirrung et al specifically teach that their arrays can be synthesized using optical fibers as a support (column 14, lines 55-59). Pirrung et al also use fluorescent markers to identify reactive members of the array (see column 3, lines 45-49 & column 28, lines 50-59, for example). However, note that the peptides/proteins themselves are not fluorescent (reading on instant claims 47 & 48).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the fibers of Browne et al as a support for an array of peptides or proteins based on the teachings of Pirrung directed towards the use of optical fibers as supports for their arrays and the use of fluorescent markers. One would have been motivated to do so because Browne et al teach that intrinsic chemical sensors having agents that are "macroscopically distributed along a single optical fiber" are suited for certain specific sensing applications (see Browne et al, page 2292, (b)). Also, the fibers of Browne et al

are specifically used to measure fluorescence. That is, one of ordinary skill would contemplate making the fibers of Browne et al with attached peptides or proteins to obtain arrays with improved properties for specific sensing applications and to be able to have a method to easily detect fluorescent markers. Moreover, one of ordinary skill would be motivated to create large arrays of peptides or proteins to screen for biological activity (see Pirrung et al column 3, lines 35-61).

Additionally, the examiner respectfully points out that claims 31, 32, 33, 35, 49 and 50 are product-by-process claims and that any array of peptides or proteins meeting the product limitations reads on such claims. The process by which the claimed array is synthesized does not appear to lend patentable weight to the claimed invention. One of ordinary skill would expect the array to be the same regardless of the manner of synthesis. Moreover, process limitations do not further limit the product (array).

14. Claims 1, 3, 4, 6-8, 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al and Pirrung et al, as set forth above, and further in view of Pilevar et al (Anal. Chem. 1998; on PTO-1449).

Browne et al teach an "intrinsic sol-gel clad fiber optic sensor" (see Title and Abstract) which reads on an array of agents attached to an optical fiber in different regions (instant claim 6). The reference teaches that the "active sensor region of a fiber can be either immobilized at the distal end of an optical fiber (extrinsic) or *distributed along the length of the fiber-optic waveguide* (intrinsic)"

[emphasis added] (page 2289, 1st column, bottom). Specifically, Browne et al teach a sol-gel clad optical fiber (see page 2291; Figure 1 and 1st column under 'Experimental Section; Sol-Gel Matrix'). Note that the claddings were "applied by dip-coating silica core fibers". This reads on the limitations of instant claims 7, 8 and 13. Also, the various sensor molecules of Browne et al are spatially resolved along the fiber, see Figure 1 and accompanying legend (reading on "uniquely specified by location" and the limitations of "linear organization" "arranged linearly or "one-dimensionally", e.g. claim 1.

The above-described fibers of Browne et al have sol-gel clad *regions* of the fiber that are created by removing the cladding from a silicone clad fiber and then replacing it with sol-gel cladding in the regions where the silicone was removed (see page 2291 1st column under 'Experimental Section; Sol-Gel Clad Fiber'). Several different dyes were used as dopants in the sol-gel regions. Browne's purposely created *regions* of sol-gel clad fiber correspond to the claimed "pre-determined portion of the optical fiber" and "reactant regions" of instant claims 1 and 6. The fiber shown on page 2292 of the reference (in Figure 3 and discussed under section denoted (b)) shows a fiber that has four regions with attached AA and CV dyes that are spatially resolved.

Browne et al lacks the teaching of the limitations with respect to specifically using peptides or proteins as the members of the array that is attached to the fiber.

However, it was well known in the art at the time of filing that optical fibers can be derivatized with a variety of agents. Browne et al lists "biological analytes" and specifically antibodies that can be used in fiber-optic chemical sensors (page 2289, 2nd column). Moreover, it was also well known in the art to make arrays of peptides/proteins on a solid support in order to have a large number of sequences to conveniently screen. Pirrung et al teach the creation of arrays by "placement of materials at known locations" (column 1, line 28) and discuss the use of peptides and proteins as the materials of the array (column 1, line 32 through column 2, line 14 & column 28, lines 5-11, for example). Pirrung et al specifically teach that their arrays can be synthesized using optical fibers as a support (column 14, lines 55-59). Pirrung et al also use fluorescent markers to identify reactive members of the array (see column 3, lines 45-49 & column 28, lines 50-59, for example).

Browne et al and Pirrung et al lack the teaching of the limitations of claims 10 and 11 with respect to derivatization and aminopropylsilylation.

However, it was well known in the art at the time of filing that optical fibers can be derivatized with a variety of agents and that aminopropylsilylation was a common method of performing such processes. Browne et al lists several different analytes that have been used in fiber-optic chemical sensors (see page 2289, 2nd column, last paragraph). The use of aminopropylsilane provides a surface with amino groups thereon for further functionalization. Pilevar et al specifically teach the attachment of fluorophores to an optical fiber through the

use of derivatization of the fiber with aminopropylsilane (see 'Chemical Treatment of Fiber Optic Surface' on page 2033 of the reference).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to derivatize the fibers of Browne et al having peptides/proteins thereon as taught by Pirrung et al by the use of aminopropylsilane based on the teachings of Pilevar et al directed towards the standard use of such agents to derivatize optical fibers. One would have been motivated to do so because Browne et al teach that intrinsic chemical sensors having agents that are "macroscopically distributed along a single optical fiber" are suited for certain specific sensing applications (see Browne et al, page 2292, (b)). That is, one of ordinary skill would contemplate making the fibers of Browne et al by using aminopropylsilane derivatization to obtain arrays that have a variety of groups attached thereto having improved properties for specific sensing applications.

15. Claims 1, 3, 4, 6-8, 13 and 30-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al (Anal. Chem. 1996; on PTO-1449) in view of Pirrung et al (US 5,143,854; on PTO-1449) and further in view of Lebl (US 5,688,696; on PTO-1449).

Browne et al teach an "intrinsic sol-gel clad fiber optic sensor" (see Title and Abstract) which reads on an array of agents attached to an optical fiber in different regions (instant claim 6). The reference teaches that the "active sensor

region of a fiber can be either immobilized at the distal end of an optical fiber (extrinsic) or *distributed along the length of the fiber-optic waveguide* (intrinsic)" [emphasis added] (page 2289, 1st column, bottom). Specifically, Browne et al teach a sol-gel clad optical fiber (see page 2291; Figure 1 and 1st column under 'Experimental Section; Sol-Gel Matrix'). Note that the claddings were "applied by dip-coating silica core fibers". This reads on the limitations of instant claims 7, 8 and 13. Also, the various sensor molecules of Browne et al are spatially resolved along the fiber, see Figure 1 and accompanying legend (reading on "uniquely specified by location" as in instant claim 34 and the limitations of "linear organization" "arranged linearly or "one-dimensionally", e.g. 1, 30, 31, 32, 36, 37 and 50).

The above-described fibers of Browne et al have sol-gel clad *regions* of the fiber that are created by removing the cladding from a silicone clad fiber and then replacing it with sol-gel cladding in the regions where the silicone was removed (see page 2291 1st column under 'Experimental Section; Sol-Gel Clad Fiber'). Several different dyes were used as dopants in the sol-gel regions. Browne's purposely created *regions* of sol-gel clad fiber correspond to the claimed "pre-determined portion of the optical fiber" and "reactant regions" of instant claims 1 and 6. The fiber shown on page 2292 of the reference (in Figure 3 and discussed under section denoted (b)) shows a fiber that has four regions with attached AA and CV dyes that are spatially resolved. Thus, with respect to the limitations of array members being present at only one position (claim 42) and

the various "synthesis products" and "chemical structures" (claims 43-46), the above teachings of Browne et al are deemed to read on these limitations.

Browne et al lacks the teaching of the limitations with respect to specifically using peptides or proteins as the members of the array that is attached to the fiber.

However, it was well known in the art at the time of filing that optical fibers can be derivatized with a variety of agents. Browne et al lists "biological analytes" and specifically antibodies that can be used in fiber-optic chemical sensors (page 2289, 2nd column). Moreover, it was also well known in the art to make arrays of peptides/proteins on a solid support in order to have a large number of sequences to conveniently screen. Pirrung et al teach the creation of arrays by "placement of materials at known locations" (column 1, line 28) and discuss the use of peptides and proteins as the materials of the array (column 1, line 32 through column 2, line 14 & column 28, lines 5-11, for example). Pirrung et al specifically teach that their arrays can be synthesized using optical fibers as a support (column 14, lines 55-59). Pirrung et al also use fluorescent markers to identify reactive members of the array (see column 3, lines 45-49 & column 28, lines 50-59, for example). However, note that the peptides/proteins themselves are not fluorescent (reading on instant claims 47 & 48).

The references lack the teaching of duplicate compounds in different positions as set forth in the instant claims 38-41.

However, it was well known in the art at the time of the invention to make duplicate arrays of compounds. For example, Lebl (US 5,688,696) teach making arrays of compounds on a similar, one-dimensional carrier (thread; see column 7, lines 30-67). Lebl (US 5,688,696) makes these arrays in duplicate (see column 8, lines 9-42) so that a control can be used in the screening of the library.

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the fibers of Browne et al as a support for an array of peptides or proteins based on the teachings of Pirrung directed towards the use of optical fibers as supports for their arrays and the use of fluorescent markers. One would have been motivated to do so because Browne et al teach that intrinsic chemical sensors having agents that are "macroscopically distributed along a single optical fiber" are suited for certain specific sensing applications (see Browne et al, page 2292, (b)). Also, the fibers of Browne et al are specifically used to measure fluorescence. That is, one of ordinary skill would contemplate making the fibers of Browne et al with attached peptides or proteins to obtain arrays with improved properties for specific sensing applications and to be able to have a method to easily detect fluorescent markers. Moreover, one of ordinary skill would be motivated to create large arrays of peptides or proteins to screen for biological activity (see Pirrung et al column 3, lines 35-61). Furthermore, one would be motivated to create such an array using *any number* of duplicate compounds as taught by Lebl. Lebl (US 5,688,696) teach that duplicate

compounds in combinatorial chemistry arrays are advantageous in the screening process.

Additionally, the examiner respectfully points out that claims 31, 32, 33, 35, 49 and 50 are product-by-process claims and that any array of peptides or proteins meeting the product limitations reads on such claims. The process by which the claimed array is synthesized does not appear to lend patentable weight to the claimed invention. One of ordinary skill would expect the array to be the same regardless of the manner of synthesis. Moreover, process limitations do not further limit the product (array).

Status of Claims/ Conclusion

16. No claims are allowed.

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the

date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurie Garcia Baker, Ph.D. whose telephone number is (703) 308-0065. The examiner can normally be reached on Monday-Thursday and alternate Fridays from 9:30 to 7:00.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jyothsna Venkat, can be reached on (703) 308-2439. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

J. Venkat

DR. JYOTHSNA VENKAT PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Maurie Garcia Baker, Ph.D.
June 2, 2002